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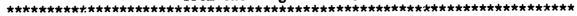
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ABSTRACT

This research brief reviews trends over two decades in enrollment and accalaureate degrees at public universities that meet the Carnegie _assification definition for "doctorate-granting" and "comprehensive." Opening highlights note that public universities comprise nearly 25 percent of the nation's four year colleges and universities and that these institutions saw an enrollment increase of 38 percent between 1970 and 1990. A side-bar covering a full page explains the Carnegie institutional classification system and the definitions of comprehensive and doctorate-granting universities. Sections on enrollment, baccalaureates, and numbers and distribution of institutions follow. Some findings are: (1) there were 459 doctorate granting and comprehensive public universities in 1987; (2) geographic distribution of these institutions shows a pattern repeated in the enrollment and earned degree data with 65 percent of universities east of the Mississippi; (3) geographic distribution of public universities' 5.5 million students in Fall 1990 mirrors the distribution of the nation's population; (4) the share of national enrollments accounted for by public universities has not changed significantly in the 1970-1990 period; and (5) of the 5.5 million students at public universities 52 percent are enrolled in doctorate-granting institutions and 48 percent at comprehensive institutions. A conclusion section suggests that institutions in areas where a decline in the traditional student population is predicted should carefully examine their clientele populations and missions. (Contains nine references.) (JB)

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Charles J. Andersen

This brief reviews trends in enrollment and baccalaureate degrees at public universities, that is, public institutions that meet the Carnegie Classification definitions for "doctorate-granting" and "comprehensive" institutions (see page 2). These institutions number less than 500, but enroll two-thirds of the students attending four-year institutions. The report shows data for 1970 and 1990, beginning and ending years of a twenty-year period that saw moderate increases in both enrollments and degrees after the rapid growth of the 1950s and 1960s.

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HIGHLIGHTS

- Public universities comprise nearly one quarter of the nation's 4-year colleges and universities.
- Public universities enrolled nearly two-thirds (65) percent) of all students attending 4-year institutions of higher education in the fall of 1990; twenty years earlier, public universities had enrolled the same share of students.
- Enrollment at public universities increased by more than one-third (38 percent) between 1970 and 1990.
- Growth at public universities has been uneven geographically, and appears to be related to demographic changes.
 - In the Southeast, public universities increased enrollment by 69 percent between 1970 and 1990.
 - In the Southwest, enrollment increased by 49 percent.
 - -- In the Great Lakes and Plains regions, enrollment increased by 26 and 22 percent, respectively.
- Public institutions enrolled 64 percent of the nation's

- graduate students in Fall 1990; twenty years earlier, public institutions had enrolled 70 percent of such students.
- Doctorate-granting institutions represent less than one-third (29 percent) of all public universities, but enroll just over half (52 percent) of the students attending such institutions
- The average public doctorate-granting university had a 1990 enrollment of 21,500 students in contrast to the average public comprehensive institution's enrollment of about 8,100 students.
- Public universities awarded nearly two-thirds (64) percent) of the baccalaureates awarded in academic year (AY) 1988-89; twenty years earlier, they had awarded 62 percent of the baccalaureates.
- In the Great Lakes region, doctorate-granting universiites award twice as many baccalaureates as do comprehensive institutions.
- In New England, comprehensive universities award more baccalaureates than doctorate-granting

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Carnegie Classifications

The Carnegie classifications were developed in 1: /0 by the Carnegie Commission on Higher Education for use in its several analyses of higher education in the U.S. An institutional list was first published in 1973 under the title, A Classification of Institutions of Higher Education; it was based on the U.S. Office of Education's report Fall Enrollment in Higher Education, 1970.

A second list, A Classification of Institutions of Higher Education, Revised Edition, was published in 1976, and a third list was published as the 1987 edition. At present, a fourth edition is in the process of preparation by the Carnegie Foundation for the Advancement of Teaching. The first and third lists provide the bases for the analyses in this research brief.

The Carnegie classification system divides the institutional universe into five general categories and several subcategories.

- 1. Doctorate-granting universities
 - 1.1 Research universities I
 - 1.2 Research universities II
 - 1.3 Doctorate-granting universities I
 - 1.4 Doctorate-granting universities II
- 2. Comprehensive universities and colleges
 - 2.1 Comprehensive universities and colleges I
 - 2.2 Comprehensive universities and colleges II
- 3. Liberal arts colleges
 - 3.1 Liberal arts colleges I
 - 3.2 Liberal arts colleges II
- 4. Two-year colleges and institutions
- 5. Specialized schools and other specialized institutions
 - 5.1 Theological seminaries, Bible colleges, and other institutions offering degrees in religion.
 - 5.2 Medical schools and medical centers
 - 5.3 Other separate health professional schools
 - 5.4 Schools of engineering and technology

- 5.5 Schools of business and management
- 5.6 Schools of art, music, and design
- 5.7 Schools of law
- 5.8 Teachers colleges
- 5.9 Other specialized institutions

In 1970, in order to qualify as doctorate-granting, an institution had to have awarded 10 Ph.D.s or more in 1969-70, with the exception of a few then-new institutions that were expected to show increased doctoral awards in the near future.

Comprehensive universities and colleges were institutions that did not qualify as doctorate-granting but offered liberal arts programs and at least one professional or occupational program, such as teacher education or nursing. Some of these institutions had limited doctoral programs. Most offered master's degrees. Size was also a factor in this cateory so it included no public institution reporting enrollment of less than 1,000 and no independent institution with an enrollment of less than 1,500.

By 1987, the classification criteria had changed somewhat. Classification as a doctorate-granting university required, at the minimum, the annual award of 20 doctorates in at least one discipline or 10 or more doctorates in three or more disciplines.

Comprehensive universities and colleges were those that did not qualify as doctorate-granting, but did award more than half of their baccalaureates in two or more occupational or professional disciplines, such as engineering, the natural sciences, or business and management. Most of these institutions offered graduate programs and awarded master's degrees. All of them had an average 1982-84 enrollment of at least 1,500 students.

In this research brief, all category 1 and 2 institutions are counted as universities.

Over the years, the Carnegie counts have not agreed with the U.S. Office/Department of Education's totals largely because of differences in the way separate campuses of multicampus institutions are counted.

Public Universities: How Many and Where

Public universities numbered 459 in 1987. They represented 23 percent of the approximately 2,000 4-year colleges and universities identified in the Carnegie Foundation's 1987 report, and 83 percent of public 4-year institutions (see Figure A).

- 134 were classified as doctorate-granting universities (29 percent);
- 325 were classified as *comprehensive* universities and colleges (71 percent).

Between 1970 and 1987, 25 public institutions moved to doctorate-granting status. Most of these institutions had been classified as comprehensive universities in 1970.

The geographic distribution of these institutions shows a pattern that will be repeated in the enrollment and earned degree data (see Figure B). ²

- Nearly two-thirds (65 percent) of the universities are east of the Mississippi River; 3
- 20 percent are in the Southwest and Far West.
- 15 percent are in the Rocky Mountains and Plains.
- A "south-southwest arc," comprised of the Far West, Southwest and Southeast regions accounted for almost half of the nation's 459 public universities.

Enrollment

At mid-twentieth century—v/ith many World War II veterans still in college—the nation's institutions of higher education enrolled 2.3 million students. Ninety percent of the enrollment was in 4-year institutions, and nearly half of that was at publicly con'rolled institutions.

Twenty years later, in the fall of 1970, 8.5 million students were enrolled. The percentage attending 4-year institutions had dropped to 73 percent, and of those, the share who attended public 4-year institutions had increased from 47 to 68 percent. During this twenty years, the two-year community college had developed and was serving about one-quarter of the postsecondary education student body.

Figure A

Number of 4-Year Institutions, by Type, 1987

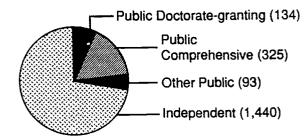


Figure B

Number and Percentage of Public Universities, by Region, 1987

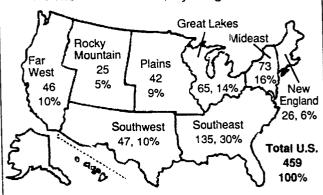
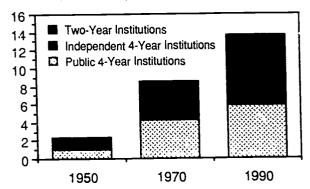


Figure C

Enrollment, by Type and Control of Institution, 1950, 1970, 1990

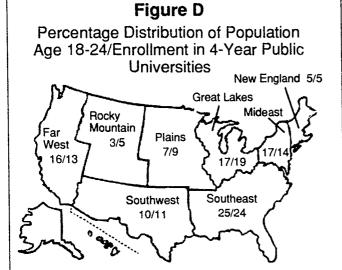


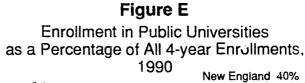
¹ This is the number of public universities in the 50 states and the District of Columbia identified by the Carnegie Foundation for the Advancement of Teaching in its 1987 classification list. Totals in this brief may differ from those in the Foundation's publications which include data from institutions in Puerto Rico, Guam and other outlying jurisdictions of the U.S..

³ Part of Louisiana and all of Arkansas are west of the Mississippi River but are included in the Southeast region totals.



² The regions used in this paper are those identified by the U.S. Department of Commerce's Bureau of Economic Analysis. They are: New England:CT, ME, MA, NH, RI, VT; Mideast: DE, DC, MD, NJ, NY, PA; Southeast: AL, AR, FL, GA, KY, LA, MS, NC, SC, TN, VA, WV; Great Lakes: IL, IN, MI, OH, WI; Plains: IA, KS, MN, MO, NE, ND, SD; Southwest: AZ, NM, OK, TX; Rocky Mountains: CO, ID, MT, UT, WY; Far West: AK, CA, HI, NV, OR, WA. Note that this regional grouping differs from that used by the Bureau of the Census and from the Department of Education's administrative regions.





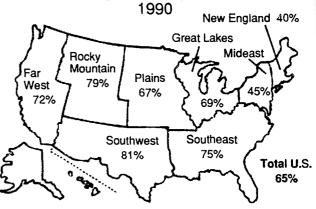
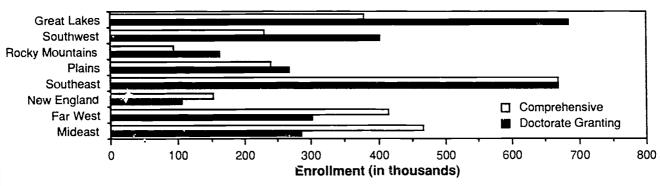


Figure FEnrollment in Public Universities by Type of Institution and Region, Fall 1990



In the next twenty years, growth continued so that in the fall of 1990, 13.7 million students were enrolled. The share at 4-year institutions dropped to 62 percent, but the share of those students who attended public institutions remained unchanged at 68 percent (see Figure C).

Differences appear, however, when the several levels of enrollment—undergraduate, graduate, and first-professional—are examined separately. In Fall 1990, public 4-year institutions accounted for—

- 70 percent of the undergraduate enrollment;
- 64 percent of the graduate enrollment;
- 41 percent of the first-professional enrollment.

In Fall 1970, the percentages were —

- 68 percent of the undergraduate enrollment,
- 70 percent of the graduate enrollment,
- 44 percent of the first-professional enrollment.

In Fall 1990, public universities enrolled 5.5 million students. This represented 65 percent of the

students at 4-year institutions and 93 percent of the students in *all public* 4-year colleges and universities.

- Doctorate-granting universities enrolled nearly 2.9 million students, just over half (52 percent).
- Comprehensive universities enrolled 2.6 million students, the remaining 48 percent.

The geographic distribution of these 5.5 million students generally mirrors the distribution of the nation's population (see Figure D).

- 3.4 million (62 percent) are in regions east of the Mississippi River;
- 1.3 million (24 percent) are in the Southwest and Far West regions combined;
- .8 million (14 percent) are in the two "interior" regions—the Plains and Rocky Mountains.
- 2.7 million public university students, representing almost half (49 percent) of the total were enrolled in the "south-southwest arc."

Just as the share of national enrollments accounted for by public universities has not changed greatly in the 1970-90 period, the public's share in the various regions has not changed materially either (see Figure E).

- Twenty years ago, in New England and the Mideast, the share of students at public universities stood at 38 and 43 percent, respectively—the lowest shares reported by the 8 regions.
- In 1990, those regions again showed the lowest percentages, and the public sector's shares had increased by two percentage points to 40 and 45 percent, respectively. These are the only regions that report less than half of their 4-year enrollments in public universities.
- The two regions with the largest proportion of their 4-year college students at public universities were the same in 1990 as in 1970—the Southwest and Rocky Mountain regions.
 - In 1970, their shares stood at 81 and 77 percent, respectively.
 - In 1990 their shares were 81 and 79 percent, respectively.

Of the 5.5 million students at public universities, 52 percent are enrolled in *doctorate-granting* universities and the remaining 48 percent are at *comprehensive* institutions. But there are major variations in these proportions in the several geographic regions (see Figure F).

- Doctorate-granting universities enroll the larger share of students in the Great Lakes, Southwest, Rocky Mountain, and Plains regions.
- Comprehensive universities account for the larger proportion of enrollments in New England, the Mideast, and Far West regions.
- In the Southeast, the two types of institution enroll essentially equal numbers of students.

As noted previously, there are fewer doctorate-granting universities than comprehensive institutions, although the former enroll more students.

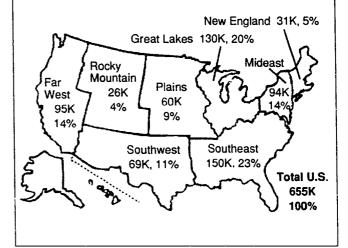
- Doctorate-granting institutions represent less than one-third (29 percent) of all public universities, but enroll just over half (52 percent) of the students attending such institutions.
- Comprehensive universities represent nearly three-quarters (71 percent) of public universities, but enroll only 48 percent of their students.

This, of course, means that there is a big difference in the average size of the two types of institution.

- The average doctorate-granting university enrolled 21,500 students in the fall of 1990, up from 18,600 in 1970 — an increase of 16 percent.
- The average comprehensive university was about one-third the size of the doctorate-granting institution, enrolling 8,100 students in the fall of 1990. This represents a 29 percent increase from the 1970 average size of 6,300.

Figure G

Number and Percentage Distribution of Baccalaureates Awarded by Public Universities, by Region, AY 1988-89



B iccalaureates

In the academic year ending in June 1989, all public institutions awarded 676,000 baccalaureate degrees. This was 66 percent of all such awards—a slightly smaller share than the sector's 68 percent share of enrollments. Nearly all (97 percent) of the publicly awarded degrees were from the universities, either doctorate granting or comprehensive.

The share of earned degrees awarded by all public 4-year institutions—like the share of enrollments—has changed very little in the last 20 years.

In 1988-89, all public institutions awarded—

- 66 percent of the baccalaureates; twenty years earlier, the figure had been 63 percent.
- 58 percent of the master's degrees; twenty years earlier the share had been 65 percent;
- 41 percent of the 1st professional degrees; twenty years earlier the share had been 42 percent; and
- 64 percent of the doctorates; twenty years before the share had been 63 percent.

The regional distribution of the *university-awarded* degrees follows the population and enrollment patterns described previously (see Figures D and G).

- Institutions east of the Mississippi River awarded 404,000 (62 percent) of the university-awarded baccalaureates in AY 1989
- Institutions in the Southwest and Far West regions awarded 164,00 baccalaureates (25 percent);

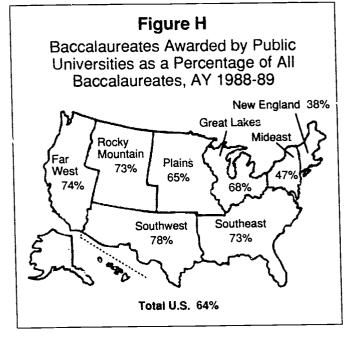
- Institutions in the two interior regions—the Plains and Rocky Mountains—awarded a total of 86,000 degrees (13 percent).
- Public universities in states comprising a "south-southwest arc" awarded 314,000, or nearly half (48 percent) of the baccalaureates awarded by the nation's public universities.

The share of baccalaureates awarded by public universities within each of the several regions follows the previously noted enrollment patterns (see Figures E and H).

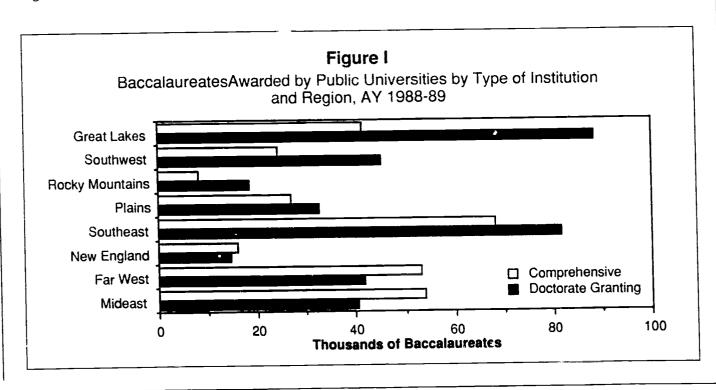
- In New England, only slightly more than one third (38 percent) of the baccalaureates were awarded by public universities.
- In the Mideast, just under half of the baccalaureates (47 percent) were awarded by public universities.
- The Southwest was the region in which the largest share of baccalaureates (78 percent) was awarded by public universities.

Within the public university sector, doctorate-granting institutions awarded a slightly greater number of baccalaureates than did the comprehensive universities, even though, as noted above, the latter outnumber the former. Fifty-five percent of the university-awarded baccalaureates came from doctorate-granting universities. This share is slightly larger than their 52 percent share of university enrollments.

These shares vary by region, however (sca Figure I).



- In the Great Lakes, Southwest, and Rocky Mountain regions approximately two-thirds of the university-awarded baccalaureates were awarded by doctorate-granting institutions.
- In the Southeast and the Plains states, just over half (55 percent) of the baccalaureates came from doctorate-granting universities.
- In the Mideast, New England, and Far West regions, slightly more than half of the baccalaureates were awarded by comprehensive institutions.





CONCLUSIONS AND IMPLICATIONS

Between the 1970 and 1987, there was relatively little change in the composition of the lists of public universities in the Carnegie classifications.

- Six percent of the "comprehensive" institutions of 1970 moved into the "doctorate-granting" university categories.
- Although half of the public institutions classified as liberal arts colleges in 1970 moved into the "comprehensive" category by 1987, this change involved only 16 institutions.

The balance in enrollment between public doctorateawarding institutions and comprehensive universities showed little change between 1970 and 1990. Each category accounted for approximately half of all public university enrollments in both years. Enrollment growth in public universities has varied by region. In the Southeast and Southwest enrollment increased at a faster pace than in other regions. In the country's midsection, the Great Lakes and the Plains regions have shown relatively slow growth, although each reported larger enrollments in 1990 than in 1970.

For the next decade, population growth in the traditional college age group (ages 18-24) is projected to grow only in the viestern part of the country, i.e. in the Southwest, Rocky Mountains, and Far West regions. Even in those areas, growth is expected to be modest. Public universities in the states with reduced 18-24 year old populations need to examine their clientele populations and missions carefully as they move through the 1990s.

RESOURCES

- 1. The U.S. Department of Education's National Center for Education Statistics (NCES) gathers data annually from the nation's institutions of higher education. It publishes annually the Digest of Education Statistics that provides data concerning all levels of education and The Condition of Education that provides additional statistical data and interpretive text and commentary. NCES conducts surveys on many aspects of higher education including institutional characteristics, opening fall enrollments, and earned degrees conferred. In the past, publications containing statistical data from such surveys were published in monograph form. Currently, the surveys are still conducted as part of NCES' Integrated Postsecondary Education Data System (IPEDS) and the results are now made available through computer tapes and reports issued in the EDTabs series. Queries concerning data tapes may be directed to Office of Educational Research and Improvement, Information Technology Branch, 555 New Jersey Ave., N.W., Washington, DC 20208-5725; telephone (202) 219-1847/1522. Publications are available for sale from the Government Printing Office. To receive assistance in ordering the publications and data tapes, contact the Education Information Branch, NCES, 1-800-424-1616
- 2. The Carnegie Foundation for the Advancement of Teaching in 1987 published a listing of the nation's institutions of higher education according to a classification system that had first been devised in 1970 by the Carnegie Commission on Higher Education. The list was created as a result of the commission's recognition of the "need for a classification of institutions of higher

education that would be more useful for purposes of analysis than existing classifications."

In 1973, the commission published the first listing of institutions according to its system which has come to be called the Carnegie classification system. The publication's title was A Classification of Institutions of Higher Education.

In 1976, after the demise of the Carnegie Commission on Higher Education, a successor activity, the Carnegie Council on Policy Studies in Higher Education, published a revised listing. That second publication was titled, A Classification of Institutions of Higher Education, Revised Edition

In 1987, the current listing was published by the Carnegie Foundation for the Advancement of Teaching (CFAT) under the title, A Classification of Institutions of Higher Education, 1987 Edition.

That publication is now out-of-print, however, CFAT is currently working on another revision.

The foundation's address is 5 Ivy Lane, Princeton, NJ 08540. Telephone: (609) 452-1780.

3. The U.S. Department of Commerce's Bureau of the Census is a principal source of population data. It provides national population estimates regularly and, from time to time, publishes projections of the population by sex, race, age, and state in its Current Population Reports, Series P-25.

In Current Population Reports, Series P-20, the Bureau of the Census provides data concerning population characteristics, including a report on school enrollment at all levels and social and

economic characteristics of students. The enrollment report is published sometimes annually, sometimes, biennially.

Current Population Reports, Series, P-20 and P-25 are available through subscription from the Superintendent of Documents, U. S. Government Printing Office (GPO), Washington, DC 20402. Copies of individual issues are also for sale. GPO's order desk telephone number is (202) 783-3238.

- 4. The American Association of State Colleges and Universities (AASCU) is a major higher education association that represents state colleges and universities throughout the country. It provides a wide range of services to its 370 members, and it sponsors and publishes research on a wide range of issues concerning higher education. Its recent publication, A Challenge of Change: Public, Four-Year Higher Education Enrollment Lessons from the 1980s for the 1990s, provides a thorough examination of changes in the recent past. For further information, contact American Association of State Colleges and Universities, One Dupont Circle, Washington, DC 20036; telephone: (202)293-7070.
- 5. The National Association of State Universities and Land-grant Colleges is a major higher education association that represents the nation's land-grant colleges and other major state universities. Its activities address higher education and scientific issues as they relate to federal and state governments and other sectors of postsecondary education. For further information, contact National Association of State Universities and Lar.d-grant Colleges, One Dupont Circle, Washington, DC 20036; telephone: (202)778-0818.

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